

In re Application of: Ernest GRIMBERG
Serial No.: 10/574,462
Filed: March 31, 2006
Final Office Action Mailing Date: July 9, 2010

Examiner: Djura MALEVIC
Group Art Unit: 2884
Attorney Docket: 31363
Confirmation No.: 2546

In the Claims:

1–62. (Canceled)

63. (Currently Amended) An infrared sensor comprising:

a sensor array comprising multiple IR sensors, configured for collecting IR energy from an external scene;

an image processor, configured for processing a sensor array output signal to obtain an IR image, for analyzing said image to determine a property of said IR image, said property being indicative of image quality, and for generating a feedback signal in accordance with said property if said property crosses a threshold, said feedback signal being for adjusting between a field of view and a grouping of sensing pixels so as to derive a required image sensitivity; and

a sensitivity adjuster associated with said sensor array, configured for deriving said a-required image sensitivity by adjusting between said a-field of view and said a grouping of sensing pixels in accordance with said feedback signal.

64. (Previously Presented) An IR sensor in accordance with claim 63, wherein said sensor array comprises an array of photon detectors.

65. (Previously Presented) An IR sensor in accordance with claim 63, wherein said sensor array comprises an infrared focal plane assembly (IRFPA).

66. (Previously Presented) An IR sensor in accordance with claim 63, wherein said sensitivity adjuster comprises a window selector configured for selecting a readout window within said array.

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67. (Previously Presented) An IR sensor in accordance with claim 63, wherein said sensitivity adjuster comprises a grouping factor selector configured for selecting a pixel grouping factor during IR energy collection.

68. (Previously Presented) An IR sensor in accordance with claim 63, further comprising a readout element configured for performing periodic sensor array readout with a readout time variable with a size of a selected readout window.

69. (Previously Presented) An IR sensor in accordance with claim 63, wherein said adjusting is in accordance with externally provided control information.

70. (Canceled)

71. (Previously Presented) An IR sensor in accordance with claim 63, wherein said property indicative of image quality comprises image SNR, and wherein said image processor further comprises an SNR detector configured for detecting an SNR of said IR image.

72. (Previously Presented) An IR sensor in accordance with claim 63, wherein said property indicative of image quality comprises image contrast, and wherein said image processor further comprises a contrast detector, configured for detecting a contrast level of said IR image.

73. (Previously Presented) An IR sensor in accordance with claim 63, further comprising a mode selector configured for switching between a high-sensitivity operating mode and a low-sensitivity operating mode in accordance with said feedback signal.

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74. (Previously Presented) An IR sensor in accordance with claim 66, further comprising a mode selector configured for switching between a small readout region and a large readout region in accordance with said feedback signal, respectively to provide high-sensitivity and low-sensitivity imaging.

75. (Previously Presented) An IR sensor in accordance with claim 67, further comprising a mode selector configured for switching between a large pixel grouping and a small pixel grouping in accordance with said feedback signal, respectively to provide high-sensitivity and low-sensitivity imaging.

76. (Previously Presented) An IR sensor in accordance with claim 63, further comprising a video processor, configured for processing a sensor array output to form a video image.

77. (Currently Amended) A method for IR sensing, comprising:
 performing a readout of a sensor array;
 processing said sensor array readout to obtain an IR image;
 determining a property of said IR image, said property being indicative of image quality;

generating a feedback signal in accordance with said property, said feedback signal being for adjusting between a field of view and a grouping of sensing pixels so as to derive a required image sensitivity;

if said property crosses a specified threshold, adjusting between field of view and said a-pixel grouping of said sensor array to provide said a-required image sensitivity in accordance with said feedback signal ~~formed by processing said readout;~~
 and

collecting IR energy over a variable window from an external scene with said sensor array, in accordance with said pixel grouping.

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78. (Previously Presented) A method in accordance with claim 77, further comprising selecting a sensor exposure time.

79. (Previously Presented) A method in accordance with claim 78, wherein said selecting is to maintain an average collected charge of said sensor at a specified level.

80. (Previously Presented) A method in accordance with claim 78, wherein said method is performed repetitively at a maximum rate permitted by said pixel grouping and said selected exposure time.

81. (Canceled)

82. (Previously Presented) A method in accordance with claim 77, wherein said property comprises at least one of: average image SNR, maximum image SNR, minimum image SNR, average image contrast, maximum image contrast, and minimum image contrast.

83. (Previously Presented) A method in accordance with claim 77, further comprising averaging respective sensor levels over multiple sensor array readout cycles.

84. (Previously Presented) A method in accordance with claim 77, further comprising switching between a high-sensitivity operating mode and a low-sensitivity operating mode.

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85. (Previously Presented) A method in accordance with claim 77, further comprising analyzing a video IR image to identify specified properties of interest.

86. (Previously Presented) An IR sensor in accordance with claim 63, wherein said property comprises image SNR.

87. (Previously Presented) An IR sensor in accordance with claim 63, wherein said property comprises image contrast.

88. (Previously Presented) An IR sensor in accordance with claim 63, wherein said feedback signal comprises at least one of: average image SNR, maximum image SNR, minimum image SNR, average image contrast, maximum image contrast, and minimum image contrast.

89. (Previously Presented) A method in accordance with claim 77, wherein said property comprises image SNR.

90. (Previously Presented) A method in accordance with claim 77, wherein said property comprises image contrast.